WHAT IS CLAIMED IS:

1.   An indexing method of a feature vector data space in which a plurality of feature vectors are indexed, the indexing method comprising the steps of:

(a) determining whether one or more cells, on each of which one or more of said plurality of feature vectors are correspondingly concentrated, exist; and

(b) hierarchically indexing the feature vector data space when it is determined that said one or more cells, on each of which said one or more of said plurality of feature vectors are correspondingly concentrated, exist in the step (a).

2.   The indexing method of claim 1, further comprising a step of (pa-1) partitioning the feature vector data space into a plurality of cells, including said one or more cells, having a uniform size, before the step (a).

3.   The indexing method of claim 1, wherein the step (a) comprises the sub-steps of:

(a-1) constructing a histogram illustrating a number of said plurality of feature vectors in each of a plurality of cells, including said one or more cells; and

(a-2) analyzing a distribution of said plurality of feature vectors using the histogram and determining whether said one or more cells, on each of

which said one or more of said plurality of feature vectors are correspondingly concentrated, exist.

4.   The indexing method of claim 1, wherein the step (b) comprises the step of indexing the feature vector data space using a vector approximation file.

5.   The indexing method of claim 4, wherein the step (b) comprises the sub-steps of:

(b-1) constructing a sub-vector approximation file over each of said one or more cells, on which said one or more of said plurality of feature vectors are correspondingly concentrated; and

(b-2) approximating said one or more of said plurality of feature vectors in said each of said one or more cells, on which said one or more of said plurality of feature vectors are correspondingly concentrated, using the vector approximation file and a corresponding sub-vector approximation file.

6.   The indexing method of claim 1, wherein the step (b) comprises the sub-steps of:

(b-1) partitioning each of said one or more cells into a corresponding plurality of sub-cells, when it is determined that said each of said one or more cells, on which said one or more of said plurality of feature vectors are correspondingly concentrated, exists in the step (a); and

plurality of cells, including said one or more cells, having a uniform size, before the step (a).

10.   The computer-readable recording medium of claim 7, wherein the step (b) comprises the sub-steps of:

(b-1) partitioning each of said one or more cells into a corresponding plurality of sub-cells, when it is determined that said each of said one or more cells, on which said one or more of said plurality of feature vectors are correspondingly concentrated, exists in the step (a); and

(b-2) approximating said one or more of said plurality of feature vectors in said each of said one or more cells, using said corresponding plurality of sub-cells, thereby hierarchically indexing the feature vector data space.

11.   The computer-readable recording medium of claim 8, wherein the step (a) comprises the sub-steps of:

(a-1) constructing a histogram illustrating a number of said plurality of feature vectors in each of a plurality of cells, including said one or more cells; and

(a-2) analyzing a distribution of said plurality of feature vectors using the histogram and determining whether said one or more cells, on each of which said one or more of said plurality of feature vectors are correspondingly concentrated, exist, and

the step (b) comprises the sub-steps of:

(b-2) approximating said one or more of said plurality of feature vectors in said each of said one or more cells, using said corresponding plurality of sub-cells, thereby hierarchically indexing the feature vector data

10   space.

7.   A computer-readable recording medium for storing program codes for performing an indexing method of a feature vector data space in which a plurality of feature vectors are indexed, the indexing method comprising the steps of:

5   (a) determining whether one or more cells, on each of which one or more of said plurality of feature vectors are correspondingly concentrated, exist; and

(b) hierarchically indexing the feature vector data space when it is determined that said one or more cells, on each of which said one or more of

10   said plurality of feature vectors are correspondingly concentrated, exist in the step (a).

8.   The computer-readable recording medium of claim 7, wherein the step (b) comprises the step of indexing the feature vector data space using a vector approximation file.

9.   The computer-readable recording medium of claim 7, further comprising a step of (pa-1) partitioning the feature vector data space into a

(b-1) constructing a sub-vector approximation file over each of said one or more cells, on which said one or more of said plurality of feature vectors are correspondingly concentrated; and

(b-2) approximating said one or more of said plurality of feature vectors in said each of said one or more cells, on which said one or more of said plurality of feature vectors are correspondingly concentrated, using the vector approximation file and a corresponding sub-vector approximation file.

12.   A method of searching for similarity in a feature vector data space in which feature vectors are indexed, the method comprising the step of (a) performing a similarity search in the feature vector data space, which has been indexed, by determining whether each of one or more cells, on which the feature vectors are correspondingly concentrated, exists and hierarchically indexing the feature vectors in said each of one or more cells, on which it is determined that the feature vectors are correspondingly concentrated, according to a predetermined indexing method.

13.   The method of claim 12, wherein the step (a) is performed based on a nearest neighbor search.